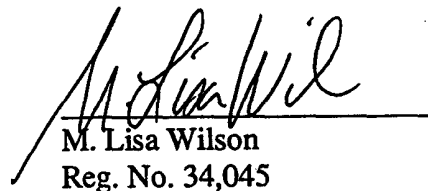


REMARKS

This amendment is being submitted to provide a corrected Sequence Listing to comply with the Notice. In particular, Applicant revised SEQ ID NOS: 1 and 2 to represent the variable length sequences as requested in the Notice. Applicant also corrected a typographical error that appeared in SEQ ID NOS: 2 and 13. For SEQ ID NO:2, this change occurs at VARIANT Position 18 in the new Sequence Listing and provides a methionine (Met) in place of the valine (Val) which was at VARIANT Position 16 in the old Sequence Listing. (The position number changed because the length of SEQ ID NO:2 increased due to the changed representation of the variable length sequences.) The same change occurs at VARIANT Position 16 in SEQ ID NO: 13, which overall sequence length was unchanged. Support for this change is found in the Specification at Page 21 in Table 2, in the box which indicates that when G is the second base, the amino acids at position 3 in the ZFP is Ser, Ala or Met. Accordingly, the original disclosure indicated that the amino acid choice should include Met (not Val) and this amendment does not introduce new matter.

If there are any questions, please call the undersigned at the telephone number indicated below.

Respectfully submitted,


M. Lisa Wilson
Reg. No. 34,045

December 4, 2001

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Appendix B - Marked Up Version

SEQUENCE LISTING

<110> Sera, Takashi
 <120> Zinc Finger Domain Recognition Code and Uses Thereof
 <130> 109845.135 [109845-130]
 <140> US 09/911,261
 <141> 2001-07-23
 <150> US 60/220,060
 <151> 2000-07-21
 <160> 69
 <170> PatentIn version 3.0
 <210> 1
 <211> 32 [28]
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Zinc finger domain
 <220>
 <221> MISC_FEATURE
 <222> (1)..(32) [(28)]
 <223> Amino acids 1-3, 10-21 [8-19] and 29-32 [25-28] are Xaa wherein
 Xaa = any
 amino acid.
 <220>
 <221> VARIANT
 <222> (5)..(8) [(6)]
 <223> Amino acids 5-8 are [5 is] Xaa wherein Xaa = any amino acid, and
up to two can be missing [amino acids 5 and 6 together represent from 2
 to 4 amino acids in length].
 <220>
 <221> VARIANT
 <222> (23)..(27) [(21)..(23)]
 <223> Amino acids 23-27 are [23 is] Xaa wherein Xaa = any amino acid,
and up to two can be missing [amino acids 21-23 together represent from
 3 to 5 amino acids in length].
 <400> 1

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa

1

5

10

15

Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa
 20 25 30

<210> 2

<211> 32 [28]

<212> PRT

<213> Artificial Sequence

<220>

<223> Zinc finger domain

<220>

<221> MISC_FEATURE

<222> (1)..(32) [(28)]

<223> Amino acids 1-3, 10-14, 16, 19, 20 and 29-32 [8-12, 14, 17-18 and 25-28] are Xaa wherein Xaa = any amino acid.

<220>

<221> VARIANT

<222> (5)..(8) [(6)]

<223> Amino acids 5-8 are [5 is] Xaa wherein Xaa = any amino acid, and up to two can be missing [amino acids 5 and 6 together represent from 2 to 4 amino acids in length].

<220>

<221> VARIANT

<222> (23)..(27) [(21)..(23)]

<223> Amino acids 23-27 are [21 is] Xaa wherein Xaa = any amino acid, and up to two can be missing [amino acids 21-23 together represent from 3 to 5 amino acids in length].

<220>

<221> VARIANT

<222> (15)..(15) [(13)..(13)]

<223> Amino acid 15 [13] is Xaa wherein Xaa = Z-1 wherein Z-1 = Arg or Lys,

Gln or Asn, Thr, Met, Leu or Ile, or Glu or Asp.

<220>

<221> VARIANT

<222> (17)..(17) [(15)..(15)]

<223> Amino acid 17 [15] is Xaa wherein Xaa = Z2 wherein Z2 = Ser or Arg,

Asn, Gln, Thr, Val or Ala, or Asp or Glu.

<220>

<221> VARIANT
 <222> (18)..(18) [(16)..(16)]
 <223> Amino acid 18 [16] is Xaa wherein Xaa = Z3 wherein Z3 = His or Lys,
 Asn or Gln, Ser, Ala or Met [Val], or Asp or Glu.

<220>
 <221> VARIANT
 <222> (21)..(21) [(19)..(19)]
 <223> Amino acid 21 [19] is Xaa wherein Xaa = Z6 wherein Z6 = Arg or Lys,
 Gln or Asn, Thr, Tyr, Leu, Ile or Met, or Glu or Asp.

<400> 2

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10 15

Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa
 20 25 30

<210> 3
 <211> 196
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Zinc finger protein

<400> 3

Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly
 1 5 10 15

Cys Gly Lys Val Tyr Gly Gln Ser Ser Asp Leu Gln Arg His Leu Arg
 20 25 30

Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly
 35 40 45

Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His
 50 55 60

Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met
 65 70 75 80

Arg Ser Asp Glu Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys
 85 90 95

Asp Gly Gly Gly Ser Gly Lys Lys Lys Gln His Ile Cys His Ile Gln

100 105 110
 Gly Cys Gly Lys Val Tyr Gly Thr Thr Ser Asn Leu Arg Arg His Leu
 115 120 125
 Arg Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys
 130 135 140
 Gly Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr
 145 150 155 160
 His Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe
 165 170 175
 Met Arg Ser Asp His Leu Ser Arg His Ile Lys Thr His Gln Asn Lys
 180 185 190
 Lys Gly Gly Ser
 195

<210> 4
 <211> 99
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Zinc finger protein

<400> 4

Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly
 1 5 10 15
 Cys Gly Lys Val Tyr Gly Thr Thr Ser Asn Leu Arg Arg His Leu Arg
 20 25 30
 Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly
 35 40 45
 Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His
 50 55 60
 Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met
 65 70 75 80
 Arg Ser Asp His Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys
 85 90 95
 Gly Gly Ser

<210> 5
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein

<400> 5

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Gln Gln His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 6
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein

<400> 6

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
 35 40 45

Glu Cys Gly Lys Ser Phe Ser Glu Ser Ser Asp Leu Gln Arg His Gln
 50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
 65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
 85 90 95

Asn Lys Lys

<210> 7

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> Zinc finger protein

<400> 7

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
 1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
 20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
 35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Gln Glu His Gln
 50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
 65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
 85 90 95

Asn Lys Lys

<210> 8

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> Zinc finger protein

<400> 8

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu Gln Arg His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 9

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> Zinc finger protein

<400> 9

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser Asn Leu Gln Glu His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 10
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein

<400> 10

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asp Leu Gln Arg His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 11
<211> 229
<212> PRT
<213> Human

<400> 11

Met Arg Leu Ala Lys Pro Lys Ala Gly Ile Ser Arg Ser Ser Ser Gln
1 5 10 15

Gly Lys Ala Tyr Glu Asn Lys Arg Lys Thr Gly Arg Gln Arg Glu Lys
 20 25 30
 Trp Gly Met Thr Ile Arg Phe Asp Ser Ser Phe Ser Arg Leu Arg Arg
 35 40 45
 Ser Leu Asp Asp Lys Pro Tyr Lys Cys Thr Glu Cys Glu Lys Ser Phe
 50 55 60
 Ser Gln Ser Ser Thr Leu Phe Gln His Gln Lys Ile His Thr Gly Lys
 65 70 75 80
 Lys Ser His Lys Cys Ala Asp Cys Gly Lys Ser Phe Phe Gln Ser Ser
 85 90 95
 Asn Leu Ile Gln His Arg Arg Ile His Thr Gly Glu Lys Pro Tyr Lys
 100 105 110
 Cys Asp Glu Cys Gly Glu Ser Phe Lys Gln Ser Ser Asn Leu Ile Gln
 115 120 125
 His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Asp Glu Cys
 130 135 140
 Gly Arg Cys Phe Ser Gln Ser Ser His Leu Ile Gln His Gln Arg Thr
 145 150 155 160
 His Thr Gly Glu Lys Pro Tyr Gln Cys Ser Glu Cys Gly Lys Cys Phe
 165 170 175
 Ser Gln Ser Ser His Leu Arg Gln His Met Lys Val His Lys Glu Glu
 180 185 190
 Lys Pro Arg Lys Thr Arg Gly Lys Asn Ile Arg Val Lys Thr His Leu
 195 200 205
 Pro Ser Trp Lys Ala Gly Thr Glu Gly Ser Leu Trp Leu Val Ser Val
 210 215 220
 Lys Tyr Arg Ala Phe
 225

<210> 12
 <211> 393
 <212> PRT
 <213> Mouse

<400> 12

Met Ser Glu Glu Pro Leu Glu Asn Ala Glu Lys Asn Pro Gly Ser Glu

1 5 10 15
 Glu Ala Phe Glu Ser Gly Asp Gln Ala Glu Arg Pro Trp Gly Asp Leu
 20 25 30
 Thr Ala Glu Glu Trp Val Ser Tyr Pro Leu Gln Gln Val Thr Asp Leu
 35 40 45
 Leu Val His Lys Glu Ala His Ala Gly Ile Arg Tyr His Ile Cys Ser
 50 55 60
 Gln Cys Gly Lys Ala Phe Ser Gln Ile Ser Asp Leu Asn Arg His Gln
 65 70 75 80
 Lys Thr His Thr Gly Asp Arg Pro Tyr Lys Cys Tyr Glu Cys Gly Lys
 85 90 95
 Gly Phe Ser Arg Ser Ser His Leu Ile Gln His Gln Arg Thr His Thr
 100 105 110
 Gly Glu Arg Pro Tyr Asp Cys Asn Glu Cys Gly Lys Ser Phe Gly Arg
 115 120 125
 Ser Ser His Leu Ile Gln His Gln Thr Ile His Thr Gly Glu Lys Pro
 130 135 140
 His Lys Cys Thr Glu Cys Ala Lys Ala Ser Ala Ala Ser Pro His Leu
 145 150 155 160
 Ile Gln His Gln Arg Thr His Ser Gly Glu Lys Pro Tyr Glu Cys Glu
 165 170 175
 Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Ala Gln His Gln
 180 185 190
 Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Glu Cys Gly Arg
 195 200 205
 Gly Phe Ser Glu Arg Ser Asp Leu Ile Lys His Tyr Arg Val His Thr
 210 215 220
 Gly Glu Arg Pro Tyr Lys Cys Asp Glu Cys Gly Lys Asn Phe Ser Gln
 225 230 235 240
 Asn Ser Asp Leu Val Arg His Arg Arg Ala His Thr Gly Glu Lys Pro
 245 250 255
 Tyr His Cys Asn Glu Cys Gly Glu Asn Phe Ser Arg Ile Ser His Leu
 260 265 270
 Val Gln His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Thr

275	280	285
Ala Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Ile Thr His Gln		
290	295	300
Lys Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Asn Glu Cys Trp Arg		
305	310	315 320
Ser Phe Gly Glu Arg Ser Asp Leu Ile Lys His Gln Arg Thr His Thr		
	325	330 335
Gly Glu Lys Pro Tyr Glu Cys Val Gln Cys Gly Lys Gly Phe Thr Gln		
	340 345	350
Ser Ser Asn Leu Ile Thr His Gln Arg Val His Thr Gly Glu Lys Pro		
	355 360	365
Tyr Glu Cys Thr Glu Cys Asp Lys Ser Phe Ser Arg Ser Ser Ala Leu		
	370 375	380
Ile Lys His Lys Arg Val His Thr Asp		
385	390	

<210> 13

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> Zinc finger domain.

<220>

<221> VARIANT

<222> (13)..(13)

<223> Amino acid 13 is Xaa wherein Xaa = Z-1 wherein Z-1 = Arg or Lys, Gln or Asn, Thr, Met, Leu or Ile, or Glu or Asp.

<220>

<221> VARIANT

<222> (15)..(15)

<223> Amino acid 15 is Xaa wherein Xaa = Z2 wherein Z2 = Ser or Arg, Asn or Gln, Thr, Met, or Ala, or Asp or Glu.

<220>

<221> VARIANT

<222> (16)..(16)

<223> Amino acid 16 is Xaa wherein Xaa = Z3 wherein Z3 = His or Lys, Asn or Gln, Ser, Ala, or Met [Val], or Asp or Glu.

<220>
 <221> VARIANT
 <222> (19)..(19)
 <223> Amino acid 19 is Xaa wherein Xaa = Z6 wherein Z6 = Arg or Lys,
 Gln or Asn, Thr, Tyr, Leu, Ile or Met, or Glu or Asp.

<400> 13

Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Xaa	Ser	Xaa	Xaa
1				5					10					15	

Leu	Gln	Xaa	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys
			20					25			

<210> 14
 <211> 10

<212> DNA
 <213> Tomato golden mosaic virus

<400> 14
 agtaaggtag

10

<210> 15
 <211> 28
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Zinc finger domain.

<400> 15

Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ser	Asp	Ser
1				5					10					15	

Leu	Gln	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys
			20					25			

<210> 16
 <211> 28
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Zinc finger domain.

<400> 16

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn
 1 5 10 15

Leu Gln Gln His Gln Arg Thr His Thr Gly Glu Lys
 20 25

<210> 17
 <211> 28
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Zinc finger domain

<400> 17

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Thr His
 1 5 10 15

Leu Gln Gln His Gln Arg Thr His Thr Gly Glu Lys
 20 25

<210> 18
 <211> 11
 <212> PRT
 <213> Human immunodeficiency virus

<400> 18

Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
 1 5 10

<210> 19
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Acid dimerization peptide.

<400> 19

Ala Gln Leu Glu Lys Glu Leu Gln Ala Leu Glu Lys Glu Asn Ala Gln
 1 5 10 15

Leu Glu Trp Glu Leu Gln Ala Leu Glu Lys Glu Leu Ala Gln
 20 25 30

<210> 20

<211> 30
<212> PRT
<213> Artificial Sequence

<220>

<223> Basic dimerization peptide

<400> 20

Ala Gln Leu Lys Lys Lys Leu Gln Ala Leu Lys Lys Lys Asn Ala Gln
1 5 10 15

Leu Lys Trp Lys Leu Gln Ala Leu Lys Lys Lys Leu Ala Gln
20 25 30

<210> 21
<211> 20
<212> PRT
<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 21

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser
20

<210> 22
<211> 9
<212> DNA
<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 22

gcagaagcc

9

<210> 23
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 23

Gly Gly Gly Gly Ser
1 5

<210> 24
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> All target polynucleotide

<400> 24
tatatataag taaggtagta tatata

26

<210> 25
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Target polynucleotide for zinc finger protein Zif268

<400> 25
tatatatagc gtgggcgtta tatata

26

<210> 26
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence

<400> 26
tatatataag taaggtagta tatata

26

<210> 27
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> ZFP target sequence

<400> 27

tatatataag taaggtaata tatata

26

<210> 28

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> ZFP target sequence

<400> 28

tatatataag taaggtatta tatata

26

<210> 29

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> ZFP target sequence

<400> 29

tatatataag taaggtacta tatata

26

<210> 30

<211> 84

<212> PRT

<213> Artificial Sequence

<220>

<223> Zinc finger protein

<220>

<221> VARIANT

<222> (15)..(15)

<223> Amino acid 15 is "Xaa" wherein "Xaa" = is any amino acid.

<400> 30

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Asp Ser Xaa Ala

1

5

10

15

Leu Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys

20 25 30
 Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu Gln Lys His
 35 40 45
 Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
 50 55 60
 Lys Ser Phe Ser Arg Ser Asp His Leu Gln Arg His Gln Arg Thr His
 65 70 75 80
 Thr Gly Glu Lys

<210> 31
 <211> 10
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate DNA probe

<220>
 <221> misc_feature
 <222> (7)..(10)
 <223> Nucleotides 7-10 are "n" wherein "n" = g, a, t, or c.

<400> 31
 ggggaannnn

10

<210> 32
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Zinc finger domain target sequence

<220>
 <221> misc_feature
 <222> (14)..(16)
 <223> Nucleotides 14-16 are "n" wherein "n" = g, a, t, or c.

<400> 32
 tatatatagg ggaannngta tatata
 26

<210> 33
 <211> 26

<212> DNA
<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence

<220>
<221> misc_feature
<222> (15)..(17)
<223> Nucleotides 15-17 are "n" wherein "n" = g, a, t, or c.

<400> 33
tatatatagg ggaannnata tatata

26

<210> 34
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence

<220>
<221> misc_feature
<222> (15)..(17)
<223> Nucleotides 15-17 are "n" wherein "n" = g, a, t, or c.

<400> 34
tatatatagg ggaannntta tatata

26

<210> 35
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence

<220>
<221> misc_feature
<222> (15)..(17)
<223> Nucleotides 15-17 are "n" wherein "n" = g, a, t, or c.

<400> 35
tatatatagg ggaannncta tatata

26

<210> 36
<211> 60

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Partial zinc finger domain oligomer

 <220>
 <221> misc_feature
 <222> (45)..(56)

 <223> Nucleotides 45-47 and 51-56 are "n" wherein "n" = g, a, t, or c.

 <400> 36
 ggggagaagc cgtataaatg tccggaatgt ggtaaaagtt ttagcnnnag cnnnnnnttg
 60

 <210> 37
 <211> 60
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Partial zinc finger domain oligomer

 <220>
 <221> misc_feature
 <222> (37)..(51)
 <223> Nucleotides 37-39 and 46-51 are "n" wherein "n" = g, a, t, or c.

 <400> 37
 tttgtatggt ttttcaccgg tatgggtacg ctgatgnnnc tgcaannnnn ngctnnngct 60

 <210> 38
 <211> 60
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Partial zinc finger domain oligomer

 <220>
 <221> misc_feature
 <222> (46)..(57)
 <223> Nucleotides 46-48 and 52-57 are "n" wherein "n" = g, a, t, or c.

 <400> 38
 ggtgaaaaac catacaaatg tccagagtgc ggcaaattct tctctnnntc tnnnnnnctt 60

 <210> 39

<211> 60
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Partial zinc finger domain oligomer

 <220>
 <221> misc_feature

 <222> (37)..(51)
 <223> Nucleotides 37-39 and 46-51 are "n" wherein "n" = g, a, t, or c.

 <400> 39
 cttgtaaggc ttctcgccag tgtgagtacg ctgatgnnnc tgaagnnnnn nagannnaga 60

<210> 40
 <211> 56
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Partial zinc finger domain oligomer

 <220>
 <221> misc_feature
 <222> (48)..(58)
 <223> Nucleotides 48-50 and 54-58 are "n" wherein "n" = g, a, t, or c.

 <400> 40
 ggcgagaagc cttacaagtgc ccctgaatgc gggaagagct ttagtnnnag tnnnnn 56

<210> 41
 <211> 55
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Partial zinc finger domain oligomer

 <220>
 <221> misc_feature
 <222> (28)..(48)
 <223> Nucleotides 28-30, 37-42 and 46-48 are "n" wherein "n" =
 g, a, t, or c

 <400> 41
 cttctccccc gtgtgcgtgc gttggtgnnn ttgtaannnn nnactnnnac taaag 55

<210> 42
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 42
gggcccggtc tcgaattcgg ggagaagccg tataaatgtc cggaa 45

<210> 43
<211> 48

<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 43
cccgggggtc tcaagctttt acttctcccc cgtgtgcgtg cgttggtg 48

<210> 44
<211> 10
<212> DNA
<213> Beet curly top virus

<400> 44
ttgggtgctc 10

<210> 45
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer

<400> 45
ggggagaagc cgtataaatg tccggaatgt ggtaaaagtt ttagcaccag cagcgatttg 60

<210> 46
<211> 60
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<213> Artificial Sequence

<223> Partial zinc finger domain oligomer

<400> 50

cttctccccc gtgtgcggtgc gttggtgggt ttgtaagcta tcactacgac taaag

55

<210> 51

<211> 16

<212> DNA

<213> Arabidopsis

<400> 51

atagtttacg tggcat

16

<210> 52

<211> 10

<212> DNA

<213> Arabidopsis

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10

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<213> Arabidopsis

<400> 53

tacgtggcat

10

<210> 54

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 54

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45

<210> 55

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<212> DNA

<213> Artificial Sequence

<220>

<400> 59
ttgggtgctc

10

<210> 60
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<220>

<223> ZFP target probe

<400> 60
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35

<210> 61
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<220>

<223> ZFP target sequence

<400> 61
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<223> ZFP target sequence

<400> 62
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10

<210> 63
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<210> 64
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<400> 64
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10

<210> 65
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<220>
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<400> 65
ttgggtgctt tgggtgctc

19

<210> 66
<211> 19
<212> DNA
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<220>
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<400> 66
agtaaggtag gagatgata

19

<210> 67
<211> 19
<212> DNA
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<220>
<223> ZFP target sequence

<400> 67
tacgtggcat tgggtgctc

19

<210> 68
<211> 28

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Zinc finger domain

 <220>
 <221> VARIANT
 <222> (13)..(13)
 <223> Amino acid 13 is "Xaa" wherein "Xaa" = Z1 wherein Z1 = Arg, Gln, Thr, Met or Glu

 <220>
 <221> VARIANT
 <222> (15)..(15)
 <223> Amino acid 15 is "Xaa" wherein "Xaa" = Z2 wherein Z2 = Ser, Asn, Thr, or Asp

 <220>
 <221> VARIANT
 <222> (16)..(16)
 <223> Amino acid 16 is "Xaa" wherein "Xaa" = Z3 wherein Z3 = His, Asn, Ser, or Asp

 <220>
 <221> VARIANT
 <222> (19)..(19)
 <223> Amino acid 19 is "Xaa" wherein "Xaa" = Z6 wherein Z6 = Arg, Gln, Thr, Tyr, Leu, or Glu

 <400> 68

Gln His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Ser Xaa Xaa
 1 5 10 15

Leu Gln Xaa His Gln Arg Thr His Thr Gly Glu Lys
 20 25

<210> 69
 <211> 28
 <212> PRT
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 <220>
 <223> Zinc finger domain

 <220>
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 <222> (13)..(13)
 <223> Amino acid 13 is "Xaa" wherein "Xaa" = Z1 wherein Z1 = Arg, Gln, Thr, Met, or Glu

<220>
<221> VARIANT
<222> (15)..(15)
<223> Amino acid 15 is "Xaa" wherein "Xaa" = Z2 wherein Z2 = Ser, Asn,
Thr, or Asp.

<220>
<221> VARIANT
<222> (16)..(16)
<223> Amino acid 16 is "Xaa" wherein "Xaa" = Z3 wherein Z3 = His, Asn,
Ser, or Asp

<220>
<221> VARIANT
<222> (19)..(19)
<223> Amino acid 19 is "Xaa" wherein "Xaa" = Z6 wherein Z6 = Arg, Gln,
Thr, Tyr, Leu, or Glu.

a!
<400> 69

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Ser Xaa Xaa
1 5 10 15

Leu Ser Xaa His Gln Arg Thr His Thr Gly Glu Lys
20 25
